Cheatham (W.)

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INTUBATION OF LARYNX FOR TRUE AND DIPHTHERITIC CROUP.*

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Although it has been but a short time since Dr. O'Dwyer, of New York, introduced intubation of the larynx for the relief of the above affections, the device has made a remarkable record for itself against tracheotomy. The operation is not a new one; it was tried years ago, and given up as a failure. To Dr. O'Dwyer we are indebted for the perfection to which it has been brought. In the last three weeks I have practiced intubation in four cases, which I will now report.

October 20th I was called to see a case of diphtheritic croup by Dr. J. A. Ouchterlony. The urgent symptom at this time was loss of voice, the breathing not being much interfered

* Read before the Louisville Medico-Chirurgical Society, November 5, 1886.

with. The child was four years old, and had been sick seven days. On the 22d the breathing was labored, and all the symptoms of laryngeal stenosis developed, the left lung being partly involved. Drs. Ouchterlony, Brandeis, Gilbert, and myself decided that there was but one chance to save the child's life, and that was in intubation. The case was too far gone to admit of a successful tracheotomy, and moreover, the family would not consent to the performance of the operation. The patient was chloroformed, and the tube introduced with but little difficulty. Relief was instantaneous. Respiration became quite free and easy. The child coughed a little, and the string attached to the tube disturbed her to some extent. After the string was removed she was comfortable.

The operation was performed October 22d, at 10:30 P. M. The patient passed a comfortable night, but there was some difficulty in swallowing fluids, as they caused cough. The voice, which could scarcely be heard before the tube was used, now, strange to say, could be heard distinctly across the room.

On the morning after the operation the involved lung was quite clear, and the patient looked much better.

On the occasion of our afternoon visit we found her much worse; the disease, no doubt, having extended to the smaller bronchi. At 3:30 P. M. that afternoon she died suddenly, I suppose from heart failure.

The tube in this case relieved all urgent symptoms immediately, and did quite as much as under the circumstances it could be expected to do.

Case No. 2 was in the practice of Dr. Pelle, of this city. The urgent symptoms were the same as in No. 1, and relief was instant. The child died, twenty-four hours after the introduction of the tube, from extension of the disease below. This case had lung complication also before the tube was inserted.

While treating another case with Dr. Field, of this city, the disease developed in a two-year-old child in the same family. Laryngeal complications began early, I think on the second day of the invasion.

Tuesday morning, November 2d, while on the way to see the patient, the father met us, telling us of distressing symptoms, and begging us to hurry to the house. We found the child blue in the face and fighting for air; her physical efforts were such as to render it diffi-

cult to hold her. The tube was inserted after a few seconds, with instant relief.

On the same morning Dr. A. M. Cartledge called me to see a little patient of his, who he feared would die before we could reach it. The tube was inserted with some difficulty, as the child was only thirteen months old. The tube was twice coughed up, and once inserted, by mistake, in the esophagus. As soon as it was got in position, and the thread removed, breathing became entirely natural.

On November 3d we attempted to remove the tube, as it had been impossible for the child to take nourishment up to that time, and it was actually starving to death. In my efforts to remove it it was pushed a little farther down to the point where it should have been at first; some mucus came away from the throat, and this gave immediate relief; she nursed without difficulty.

If this child should get well it will be a marvel, since the surroundings are as bad as they can possibly be. The family cook, eat, and sleep in a room about twelve by twelve. The floor seems to be below the level of the ground outside. They are too poor to get proper food for the mother, consequently the baby is badly

fed. With such surroundings, diphtheria is likely, with the best of treatment, to do its fatal work.

Physicians who have used the tube write of the difficulty of its introduction. I have given an anesthetic in but one of the four cases in which I have introduced it, and have found but little trouble in getting it into place. The discomfort from the tube is but slight, passing off in a few moments. The patients feed very well afterward; especially is this true after the first twenty-four hours. I recognize feeding as a matter of first importance in diphtheria, and realize the importance of the loss of twenty-four hours. A majority of the patients feed well in from three to six hours after the introduction of the tube.

Now let us glance at the comparative statistics of intubation and tracheotomy in diphtheritic croup.

Of all the tracheotomies done in Louisville, we know of but four successes. Dr. J. A. Larrabee reports eleven operations, with one success. In Chicago there have been acknowledged three hundred and six tracheotomies, with fifty-eight successes, or only 18.95 per cent. Would any of us undertake to guess at the many failures

not reported? The ages of the patients in whom tracheotomy was performed averaged five years and one month. Dr. Waxham, of Chicago, to whom I am indebted for most of the statistical notes in this article, says he knows of one physician who has performed tracheotomy fifty times, with two recoveries; another, twenty times, with no recovery; another, fourteen times, without one recovery; another, eight times, without one recovery; and another fifteen times, with one recovery. In all, 107 cases, with but 3 recoveries.

It seems to me that this showing is bad enough to make any substitute, even if it should promise only equal success, with no mutilation, more than acceptable.

Now let us look at what intubation has done. Dr. W. P. Northrup, of New York, reports 12 cases, with 5 recoveries; Dr. C. P. Caldwell, of Chicago, 3 cases; Dr. E. F. Ingalls, of Chicago, 5; Dr. Strong, of Chicago, 7; Dr. Richardson, of Chicago, 10; Dr. Waxham, of Chicago, 58. Total, 95 cases, with 28 recoveries, or 29.47 per cent. The age of these cases averaged three years and seven months. You remember the cases that were tracheotomized averaged five years and one month, which

should have been much in their favor, yet the recoveries from tracheotomy were only 18.95 per cent, while intubation gives 29.47 per cent of recoveries. Dr. Waxham says, of the 58 cases operated on by himself 20 of them were actually moribund.

All of us must acknowledge that the usual average of successes of tracheotomy in diphtheritic croup given in the books is too high. Few ever save one third of the cases. One author has reported fifty per cent of his cases saved, but acknowledged at the same time that he operated very early in each case, and that many of them would no doubt have recovered if left to nature.

All the cases of intubation reported were performed late in the disease, not until it was impossible for the patient to breathe without the measure, and some of them were performed after the patient had become pulseless.

The followers of intubation must acknowledge that tracheotomy gives one advantage, and that is, a chance to keep the trachea clear of obstruction. But the operation is attended by many disadvantages: (1) The difficulty of getting permission to perform it; (2) the mutilation; (3) the open wound with danger of

septic inoculation; (4) the danger incurred by the passage of the air directly into the lungs without having obtained the proper degree of temperature and humidity; (5) the danger of obstruction to the tube from the causes given in No. 3; (6) the slow recovery from the wound; (7) the difficulty of the operation; (8) the great care needed after its performance; (9) the great irritation caused by the canula, if used; (10) if the patient dies, regret is always expressed that the operation was allowed; (11) the greatest of all, the few recoveries.

Now, as to intubation: (1) The readiness with which permission is granted to perform it; (2) no mutilation, and of course no hemorrhage; (3) the inspired air, going through the natural passages, is moist and warm; (4) the air being moist and warm the expectoration is easier; the tube is not so apt to become obstructed, and pneumonia is less liable to follow; (5) no wound to granulate and slowly heal; (6) the ease with which the operation can be performed; (7) but little attention is needed after intubation—the tube occasionally becomes closed, but this does not happen near so frequently as in tracheotomy; (8) the tube

causes but little irritation; (9) if the patient dies, no regret is expressed that the operation was performed; (10) the encouraging per centage of successes.

There are no doubt objections to intubation, the chief of which, so far as I know, is the difficulty of removing the tube after recovery. In the very young, we must expect some trouble here. When the patient has recovered sufficiently to have the tube removed, if it is necessary, ether can be given, which will simplify matters very much. In some cases simple inversion of patient is all that is necessary. In others inversion with a sharp blow on the back will be successful. Again, gagging the patient by introducing a finger or some foreign substance into the mouth, and touching the soft palate or pharynx while the patient is inverted will succeed. A special instrument for the removal of the tube, when the above fails, is with each set of instruments. Again, the tube may be coughed up when the doctor is not convenient, or, as has occurred occasionally, it may become occluded by mucus or membrane when the physician is not on hand.

Since writing the foregoing, Case No. 4, the thirteen-months-old child has died. It

lived forty-one hours after the introduction of the tube. In this case every thing was against its recovery. The cause of death is not known. Dr. Cartledge, some hours after death, endeaved to recover the tube. As he was not able to reach or feel it in the larynx, he expressed some fears that it had passed into the trachea. I believe this to be impossible, because of the smallness of the glottis, and the size of the collar or head of the tube. Such an accident happened to Dr. Waxham, with one of the primitive tubes, but not with one of the latest improved form. Should this happen, there would be no immediate danger unless it became occluded. Again, the child's jaws were so stiff that the doctor had to use a piece of metal to prize them open, and could with great difficulty reach the larynx. Furthermore, the edema of the parts might have hidden the tube, or the patient might have coughed it up and swallowed it, death following the removal of the tube. We endeavored to get a *post-mortem* in this case, but failed.

Case No. 3 has been wearing the tube since Tuesday, 8:30 A. M., or eighty-four hours.*

*Coughed up tube at 4:30 P. M., 6th. Discharged, cured, November 10th.

No. 2, two years old, who is now wearing the tube, was treated in the same manner, except that insufflation of sulphur, boric acid, trypsin, bicarbonate soda, and acacia was practiced. This afternoon she breathes naturally, except after a nap, when she coughs a little. The pulse this afternoon was 126; temperature, 99°; respiration, 40. She feeds well.

There have been three cases in this family. The first, a child of six years, died from extension of the disease to the lung. She was treated with whisky and iron internally; locally, there was used a gargle of sulphur, glycerine, and sulphurous acid.

No. 3 was given from the first a one-grain calomel triturate every hour until eight were taken. The gargle was not used, but the insufflations of the above-named powder, with boric acid omitted, were used.

No. 3 was in bed but two days, not wanting to stay there longer. I found her up this morning, dressed and playing around the room. Dr. Field ordered her to bed immediately. It is wonderful with what avidity the patients I have treated drink whisky. They can hardly get enough to satisfy them. They ask for it constantly, and are never refused.

I have endeavored to present this subject to the "Fellows of this Society" in an impartial manner, and I leave it to you, gentlemen, to say whether, in future cases demanding operative interference, the measure shall be tracheotomy or intubation.

LOUISVILLE.